**AMENDMENTS TO THE CLAIMS** 

1-14. (Canceled)

15. (Withdrawn) A computer readable media having stored thereon a set of

instructions for causing a mask writing tool to create a mask comprising:

a description of a number of files in a mask writer format the define structures on a mask,

wherein at least two of the files have overlapping extents; and

a description of where each of the files should be placed on the mask.

16. (Withdrawn) A computer readable media having stored thereon:

a sequence of instructions that, when executed by a mask writing tool, causes the mask

writing tool to write a number of overlapping files onto a mask in order to create a layer of a

device.

17. (Withdrawn) A computer readable media having stored thereon:

descriptions of one or more repeated cells, each having patterns of polygons that

correspond to structures that are repeated in a layer of a device;

a description of one or more remainder cells having polygons that, when written, create

structures not created by writing the descriptions of the repeated cells, and areas that prevent the

creation of structures on the mask that would be created by writing descriptions of the repeated

cells.

18. (Withdrawn) The computer readable media of Claim 17, wherein:

the number of repeated cells include polygons that compensate for a cell's interaction

with other cells that define structures in the layer of the device.

19. (Withdrawn) A computer readable media on which is stored instructions for

execution by a mask writing tool to create a mask for a layer of a device, comprising:

LAW OFFICES OF CHRISTENSEN O'CONNOR JOHNSON KINDNESS<sup>PLLC</sup> 1420 Fifth Avenue

Suite 2800 Seattle, Washington 98101 206.682.8100 instructions to write sets of structures on the mask, at least some of the sets having extents that overlap; and

instructions of where each of the sets is to be written on the mask.

20. (Canceled)

21. (Withdrawn) A computer readable media on which is stored a set of instructions

for a mask writing tool to create a mask for a single layer of a device, comprising:

a number of files, each of which corresponds to a selected cell in a data layer of the

device, wherein the selected cells are modified to compensate for each instance of the selected

cell's interactions with other cells above and/or below the selected cell in the data layer in order

to create the structures defined by cells above and/or below each instance of the selected cell in

the data layer;

a description of a number of locations at which the files should be written; and

one or more files that define structures in the layer of the device that are not created by

writing the files corresponding to the selected cells at the locations indicated.

22. (Canceled)

23. (Withdrawn) A computer readable media on which is stored a sequence of

program instructions that, when executed by a computer, will cause the computer to perform the

acts of:

reading a file that defines a number of cells for a layer of a device;

analyzing the cells and selecting a number of the cells;

modifying the selected cells to compensate for each of the selected cell's interaction with

other cells;

producing a number of files in a mask writing format that correspond to the modified,

selected cells; and

LAW OFFICES OF CHRISTENSEN O'CONNOR JOHNSON KINDNESS<sup>PLLC</sup> 1420 Fifth Avenue Suite 2800

Suite 2800 Seattle, Washington 98101 206.682.8100 producing a list of positions in a mask writing format that indicates where the files are to be written on a mask.

24. (Withdrawn) A computer readable media on which is stored a sequence of

program instructions that, when executed by a computer, causes the computer to perform the acts

of:

reading a device layout file that defines a number of cells of a layer in a device; and

selecting a number of the cells, wherein at least some of the number of selected cells

define structures in the layer that are repeated, wherein the selection is made such that the time

required to write files corresponding to the selected cells is minimized and the coverage area of

the files corresponding to the selected cells is maximized.

25. (Withdrawn) The computer readable media of Claim 24, further comprising

instructions that cause the computer to:

modify a selected cell based on the selected cell's interaction with other cells in the

device layout.

26. (Withdrawn) The computer readable media of Claim 24, further comprising

instructions that cause the computer to:

create one or more additional cells that create structures in the layer not created by

writing files that correspond to the modified cells.

27. (Withdrawn) The computer readable media of Claim 26, further comprising

instructions that cause the computer system to:

generate files in a mask writer format corresponding to the modified cells and for the one

or more additional cells; and

generate a list in a mask writer format of where each of the files should be written on the

mask to create the layer of the device.

LAW OFFICES OF CHRISTENSEN O'CONNOR JOHNSON KINDNESS<sup>PLLC</sup> 1420 Fifth Avenue

Suite 2800 Seattle, Washington 98101 206.682.8100

-4-

28-34. (Canceled)

35. (Currently amended) A method of creating a file that describes a layer of an

integrated circuit for use by a mask writing tool, comprising:

receiving a hierarchical input file that defines a number of cells, each of which defines

one or more polygons corresponding to patterns to be created on a mask, and may include

references to other cells;

selecting one or more cells from the hierarchical input file;

modifying the selected cells to include the polygons or portions thereof found in

overlapping placements of the non-selected cells and the placements of the selected cells and/or

to compensate for interactions with other cells;

creating one or more remainder cells to include polygons or portions thereof defined in

the placements of non-selected cells that are not within the modified, selected cells; and

creating a file for use by a mask writing tool by eliminating the non-selected cells such

that the description of the modified, selected cells and the one or more remainder cells with their

placements describe the layer of the integrated circuit.

36. (Previously presented) The method of Claim 35, wherein each cell has an extent,

and the extents of at least some of the modified, selected cells to be written on the mask overlap.

37. (Previously presented) The method of Claim 35, wherein the step of creating one

or more remainder cells includes creating a cell with polygons that prevent extraneous patterns

from being created on a mask when the modified selected cells are written on the mask.

38. (Previously presented) The method of Claim 35, wherein the selection of cells is

limited to cells that are repeated in the layer of the integrated circuit.

39. (Currently amended) The method of Claim 35, <u>further comprising: determining</u>

an area of a mask that would be occupied by each cell and the time required to write the

LAW OFFICES OF CHRISTENSEN O'CONNOR JOHNSON KINDNESSPACE 1420 Fifth Avenue Suite 2800

Suite 2800 Seattle, Washington 98101 206.682.8100 placements of a cell on a mask, wherein the selection of cells is limited to cells that maximize the area of the mask written with the modified, selected cells and minimizes the time required to

write the modified, selected cells on the mask.

40. (Previously presented) The method of Claim 35, wherein the selected cells are

modified by determining if the mask writer is capable of transforming the orientation of

modified, selected cell and if not, creating a copy of the modified, selected cell that the mask

writer can print in a proper orientation.

41. (Currently amended) A computer readable media including a number of

instructions that when executed by a computer cause the computer to perform a method for

creating a file that describes a layer of an integrated circuit for use by a mask writing tool by:

receiving a hierarchical input file that defines a number of cells, each of which defines

one or more polygons corresponding to patterns to be created on a mask, and may include

references to other cells;

selecting one or more cells from the hierarchical input file;

modifying the selected cells to include the polygons or portions thereof found in

overlapping placements of the non-selected cells and the placements of the selected cells and/or

to compensate for interactions with other cells;

creating one or more remainder cells to include polygons or portions thereof defined in

the placements of non-selected cells that are not within the modified selected cells; and

creating a file for use by a mask writing tool by eliminating the non-selected cells such

that the description of the modified, selected cells and the one or more remainder cells with their

placements describe the layer of the integrated circuit.

42. (Previously presented) The computer readable media of Claim 41, wherein the

instructions further cause the computer to create one or more remainder cells by creating a cell

-6-

LAW OFFICES OF CHRISTENSEN O'CONNOR JOHNSON KINDNESS<sup>PLLC</sup> 1420 Fifth Avenue with polygons that prevent extraneous patterns from being created on a mask when the modified, selected cells are written on the mask.

43. (Previously presented) The computer readable media of Claim 41, wherein the

instructions further cause the computer to limit the selection to cells that are repeated in the layer

of the integrated circuit.

44. (Currently amended) The computer readable media of Claim 42, wherein the

instructions further cause the computer to determine an area of a mask that would be occupied by

each cell and the time required to write the placements of a cell on a mask and to limit the

selection of cells to cells that maximize the area of a mask written with the modified, selected

cells and minimizes the time required to write the modified, selected cells on the mask.

45. (Previously presented) The computer readable media of Claim 42, wherein the

instructions further cause the computer to modify the selected cells by determining if the mask

writer is capable of transforming the orientation of a modified, selected cell and if not, creating a

copy of the modified, selected cell that the mask writer can print in a proper orientation.

46. (Currently amended) A method of preparing a file that describes a layer of an

integrated circuit to be used by a mask writer to create one or more masks, comprising:

receiving a hierarchical input data file that defines a number of cells, each of which

defines one or more polygons corresponding to patterns to be created on a mask, a placement of

where the cell is to be printed, and may include references to other cells;

reducing the hierarchy of the input data file to include a number of selected cells and the

one or more remainder cells by:

selecting a number of cells;

modifying the selected cells by incorporating polygons or portions thereof defined in

non-selected cells having extents that overlap the extents of the selected cells; and

LAW OFFICES OF CHRISTENSEN O'CONNOR JOHNSON KINDNESSPLE 1420 Fifth Avenue Suite 2800 Seattle, Washington 98101

206.682.8100

-7-

creating one or more remainder cells, including polygons or portions thereof that are not

defined in the modified, selected cells; and

creating the file for use by the mask writer that describes the layer of the integrated

circuit by including the selected cells and the one or more remainder cells, and their placements.

47. (Currently amended) A computer readable media including a number of

instructions that when executed by a computer cause the computer to perform a method of

preparing a file that describes a layer of an integrated circuit to be used by a mask writer to

create one or more masks by:

receiving a hierarchical input data file that defines a number of cells, each of which

defines one or more polygons corresponding to patterns to be created on a mask, a placement of

where the cell is to be printed, and may include references to other cells;

reducing the hierarchy of the input data file to include a number of selected cells that

include polygons or portions thereof defined in non-selected cells having placements that overlap

placements of the selected cells, and one or more remainder cells having polygons or portions

thereof not defined in the selected cells; and

creating the file for use by the mask writer that describes the layer of the integrated

circuit by including selected cells, the one or more remainder cells and their placements-describe

the layer of the integrated circuit.

48. (Currently amended) A file that describes a layer on an integrated circuit for use

by a mask writer to create one or more masks, wherein the file is created by:

receiving a hierarchical input file that defines a number of cells, each of which defines

one or more polygons corresponding to patterns to be created on a mask, an indication of where

the cells should be placed, and may include references to other cells;

selecting one or more cells from the hierarchical input file;

LAW OFFICES OF CHRISTENSEN O'CONNOR JOHNSON KINDNESS<sup>PLLC</sup> 1420 Fifth Avenue Suite 2800

Suite 2800 Seattle, Washington 98101

206.682.8100

modifying the selected cells to include the polygons or portions thereof <u>found in</u> <u>overlapping placements</u> of <u>the non-selected cells and the placements of the selected cells and/or to compensate for interactions with other cells</u>:

creating one or more remainder cells to include polygons or portions thereof defined in the placements of non-selected cells that are not within the modified, selected cells; and

creating a file for use by a mask writing tool by eliminating the non-selected cells such that the description of the modified, selected cells and the one or more remainder cells with their placements describe the layer of the integrated circuit.

49. (Currently amended) A file that describes a layer of an integrated circuit for use by a mask writer to create one or more masks that is created by:

receiving a hierarchical input data file that defines a number of cells, each of which defines one or more polygons corresponding to patterns to <u>be</u> created on a mask, an indication of where the cells should be placed, and may include references to other cells;

reducing the hierarchy of the input data file to include only a number of selected cells <u>that</u> define a number of polygons and polygons or portions thereof that are defined in non-selected cells having placements that overlap the placements of the selected cells and [[the]] one or more remainder cells <u>that define polygons</u> or portions thereof that are not defined in the selected cells; and

creating the file for use by the mask writer that describes the layer of the integrated circuit by including the selected cells and the one or more remainder cells and their placements.